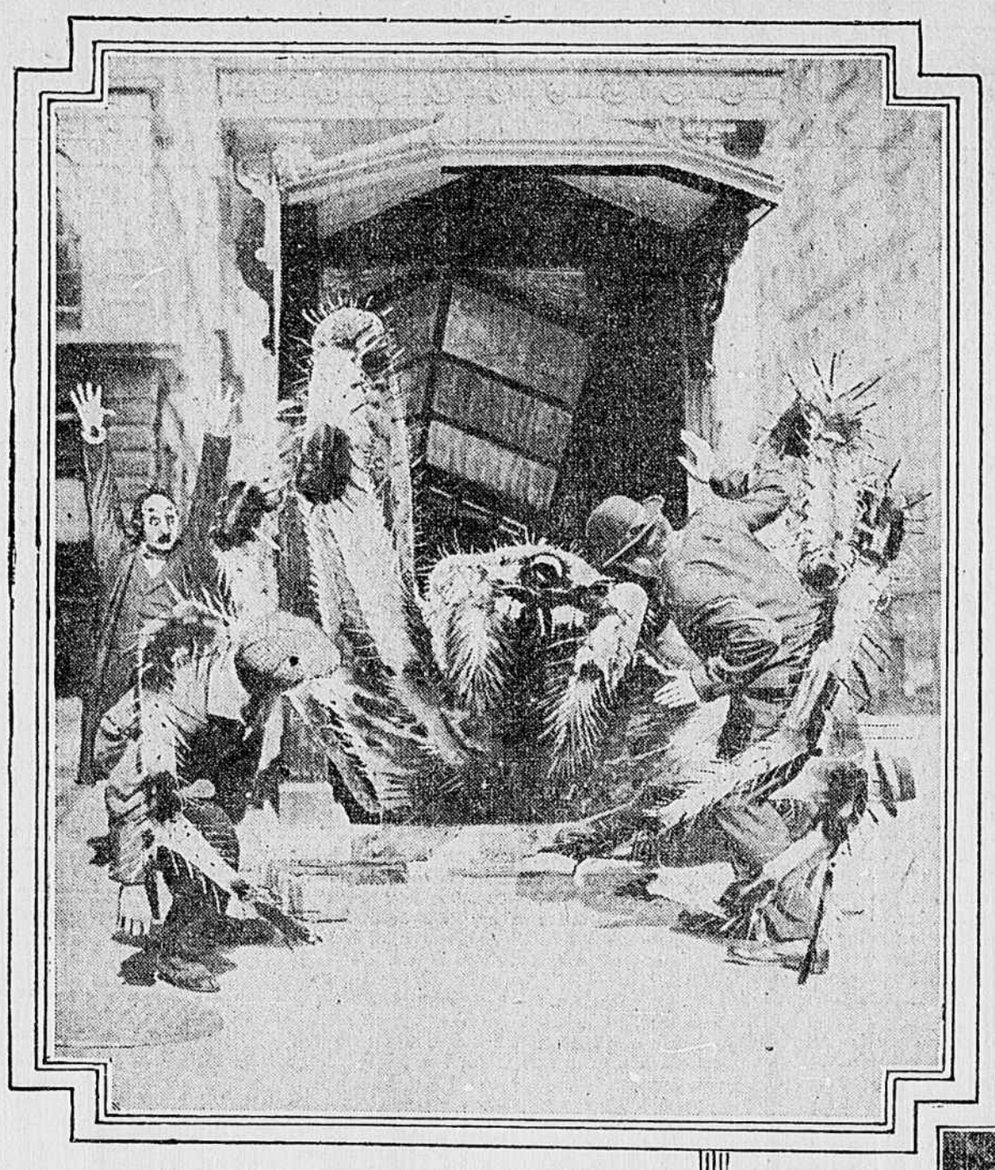


A Common Yellow Spider Enlarged to This Size Would Have This Terrifying Aspect if It Sprang Out of a Subway Entrance.

IF BUGS WERE A

Extraordinary That Would Fa the Little Thing den Grew as La Look to Ea

By Prof. H. L. Weston, Ph. D.

IF our common garden bugs were as big as men, they would be far more terrible and deadly than any of the lions, tigers, snakes and other dangerous creatures that roam the wild places of the earth.

Such a change in size is not inconceivable, for geology proves that in past ages there were insects as large as men and even much larger.

Here you see photographically illustrated some of the dreadful shocks and surprises that would meet you if the bugs grew as large as men.

For instance, we see a colossal spider coming out of a Subway entrance and seizing the first man it meets. This is only a common garden spider, but in this enlarged form it is certainly the most terrible creature that we have ever looked upon.

The spider secretes a form of poison that paralyzes a fly at the first touch. The enlarged spider would similarly paralyze a man the moment it touched him, and then carry him away and suck his blood at leisure, or keep the body in storage.

The spider has an insatiable appetite for blood, as shown by his unlimited capacity for ensnaring and devouring flies.

Henri Fabre, the French entomologist, and Maeterlinck have well pointed out that the spider appears to human eyes to be the most malevolent of all living creatures, not excepting the snake. If the spiders were of colossal size the whole human race would not be sufficient to satisfy their thirst for blood.

In another ingeniously constructed photograph we see a soldier with a quick-firing gun endeavoring to repel the attack of a gigantic hornbeetle. The gun is shattering fragments of the beetle's horny carapace, but the insect fiercely advances indifferent to the injury.

The hornbeetle, as he really exists, is armed with two vast horny mandibles occupying more than half the bulk of the body. They are not dissimilar to the claws of a lobster in shape, and are quite as hard in substance. A man can scarcely crush the claws of this hornbeetle with his foot, even when the insect is of comparatively modest size.

Bullets would glance off the head of the giant hornbeetle, as they would off the turret of a battleship. A tap of his sharp mandible would enter a man's body as easily as a spear would enter a pig. No wild animal as formidably armed as this has threatened the existence of man within historic times. This is truly a dragon.

Here I may point out an extraordinary advantage these gigantic insects would possess in a war upon man. They cannot be killed or disabled as quickly as man and other animals that have a nervous system centralized in the brain. No blow in any one spot is fatal to them. You can demolish the legs, wings, eyes and a considerable part of the beetle's body, and it will continue to move on with its vitality apparently unaffected. The attack of an army of such creatures, raised to human size, would appal even the bravest army provided with the best of modern artillery. It would be necessary to devise new means of attack, perhaps poisonous gases and deadly microbes, to meet such enemies.

It has been reasonably argued that some of the existing ants would prove unconquerable opponents if they deliberately made war on man. How much more terrible would they be if raised to human size?

Another picture shows what would happen if a horned garden caterpillar were to grow as large as a man over night, and in the morning should attack the mistress of one of our suburban homes when she went into her garden to pick some flowers.

This caterpillar is far more hideous than the most terrible anaconda that ever raised its head from the depths of the Brazilian forest. The caterpillar does not have venomous fangs, but it exudes a sickening

A Woman in Her Garden Would Be Subject to Attacks Like This from the Common Horned Caterpillar, Which Smothers with the Sickening Liquid It Exudes and Stings with Its Hairs.

Imagine the Horror of This Automobile Party Stopped and Attacked by This Armored Bug.
Its Horns Would Pierce a Man's Body as Easily as a Spear Would Go Human Beings and Chop Them to Pieces With Its Horny Mandibles as

How the Spleen Manufactures White Blood Corpuscles to Fight Disease

THE spleen has long been one of the mysteries of the human body. This organ, a soft mass of blood vessels and tubes situated on the left side of the stomach, evidently performs some important function in the working of our body, but hitherto no physician has been able to prove exactly what this is. The accidental rupture of the spleen causes death, but, on the other hand, the organ can be removed by surgery, and the patient may live a long time afterward. Apparently, therefore, it is not essential to life.

Dr. Dudley H. Morris, of the Department of Pathology of the New York College of Physicians and Surgeons, has now demonstrated by a series of remarkable experiments the actual functions of the spleen. He has proved that one of the first duties of the spleen is to supply red and white corpuscles to the blood. These are the solid elements of the blood. The spleen also has the duty of regulating the proportion of white corpuscles to red according to the state of the body.

These white corpuscles destroy disease germs in the blood and help to maintain healthy conditions in the system. When disease attacks the system the spleen immediately begins to manufacture an extra number of white corpuscles in order to combat the new condition. The doctor has actually counted the number of red and white corpuscles secreted by the spleen of a number of animals in various states of health and disease.

His experiments are described by him in the rrent issue of the Journal of Experimental Medicine published by the Rockefeller Institute, New York.

Dr. Morris found that the proportion of white corpuscles in the vein that leaves the spleen is much larger than in the artery that enters the organ. Counts were made with the "Thoma-Zeiss apparatus" with blood from the splenic artery, splenic vein, mesenteric vein, and for purposes of control from a vein on the surface of the body. Smears of blood were also made from each location. Rabbits, cats and dogs were studied, some in perfect health, others suffering from spontaneous or artificially induced disease. Thorough autopsies were made in each case and the organs studied microscopically.

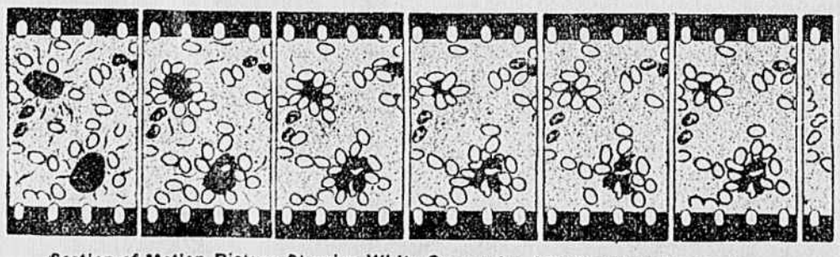
There were always more red and white cells in the splenic vein than could be found in any of the other vessels. Frequently this excess of corpuscles rose to such a degree that there were twice as many red or white cells coming out as going into the spleen.

The excess of white cells was mainly of the single-celled variety. These mononuclear cells were mainly of the large variety whereas those coming from adenoid tissue of the intestine were mainly of the small variety. The significance of this was clearly shown in Cat No. 3, where the white cells coming from the spleen were found to be only half as numerous as in the surface circulation and in the intestinal veins. The autopsy showed the reason for this. The spleen was unchanged and discharged its normal quantity of large mononuclear cells into the blood stream, but the adenoid tissue in the intestine was enormously enlarged and was discharging great numbers of small cells into the circulation.

One of the most striking evidences of spleen blood formation was that of Cat No. 2, in which 13,000,000 red corpuscles and 137,000 white corpuscles per cubic millimetre were found in the vein leading from the spleen, as against two-thirds of that number in the circulation on the surface of the body. The reason for this at once became apparent on examination of the spleen itself. There was an enormous enlargement of the organ and the germinal centres on microscopical section showed very active production of large cells. There were furthermore two accessory spleens. Otherwise the cat was in normal health.

Most important of all were the results in Rabbit No. 5, which had been previously inoculated with a rather virulent strain of para-typhoid bacillus, a germ resembling typhoid. This strain in rabbits causes a marked failure of white corpuscles in the general blood vessels of the body as a regular feature following inoculation. But the remarkable thing was that although this failure of white corpuscles had reached such a grade that the heart's blood contained only 450 white blood cells to the cubic centimetre, the spleen still kept discharging white blood cells at a rate of 7,500 per cubic centimetre. This, Dr. Morris says, was a perfectly evident effort of the spleen to compensate for the loss in the general blood stream.

Dr. Morris says that this and the other results in his experiments all point to the inevitable conclusion that the spleen is a blood-forming organ of prime importance in the animal system. The fact that the organ can be removed without causing death or even considerable harm to the animal organism does not militate against this conclusion. Other organs, such as the bone marrow and adenoid tissues in general, may assume part of the role of the spleen when this is absent, but only the severity of the blood-destroying agent and the individual resistance can determine whether the body can stand the strain when deprived of the spleen. Cases of death from removal of the spleen when affected by malaria support this strongly.



Section of Motion Picture Showing White Corpuscles Attacking and Destroying Tuberculosis Germs.

Why There Cannot B

By G. K. Chesterton.

QUITE apart from who is right or wrong in the war, there are elements in Europe which the American citizen is happy enough not to have experienced, but which the American citizen is almost certainly shrewd enough to see. There were very many during the North and South war who wanted England and Europe, perhaps, to intervene in America. At that time our sympathies would have been entirely with the South; nor am I, to-day, without any sympathy with those sympathies. Yet I think we are most of us glad, and so far as one may dogmatize of another nation, I think most Americans are glad, that the real claims of Robert Lee or the real claims of Abraham Lincoln were not settled either at a town like Hatfield or a town like Huddersfield.

The English aristocrat was not fit to comprehend the Virginian aristocrat, even when he made him out much more aristicratic than he was. The man in Birmingham could not really estimate the man in Boston—even when he overestimated him. But all this is an understatement of the comparison. The most chivalric champion of States' Rights never really felt that Massachusetts or Old Virginia was a sovereign nation in the sense of France or Russia; Bull Run could not leave so deep a cleavage as Jena, nor Gettysburg as Sedan. To put the point in its most practical form, I do not believe there was one poor, gallant, ragged "Reb" or "Yank" in those soul-stirring democratic armies who did not know he was an American. But I have passed my life among hundreds of highly educated Englishmen who did not know they were Europeans. They know it now.

Touching the actual challenge shock of battle, there is nothing to be said but what I said p this place. There is no need to answer case, for there is no German case. Eve true that our defense of Belgium was base interests, it leaves the moral advantage, least, on our side rather than the German. it cannot be more wicked to keep your wo reasons. Mr. Asquith, I imagine, has ne himself as a saint because he did not inv But he might still have regarded himself a if he had. All the commonest contracts commerce are of interests; but in the gain of cash and goods it is thought good t goods, and bad merely to secure what Pr matists would call "the needful."

Upon the pure point of logic, therefore, and have never even begun to see, that E ing her promise can be worse than Germa her promise, even if it were true tha acted from the high, sincere motive of human beings to sit out a play by Suderm England acted from the low, crafty motiv ing the English ports.

It is the same with the only other di..put tory of the war that can be studied in th and logical light: the ultimatum from A which the whole matter began. It is impos it and the incidents surrounding it without tain that Austria made and meant to mak war. She was in the position of that most of bully who may be disappointed by gett wants. Nay, in a sense, Austria is surety ness of the Servian resistance, for Austria to formulate a set of claims that no nation accept. She had to compose a work of a